Apiculture

Lecture 3: APIARY MANAGEMENT

Pre-requisites to start beekeeping

a. Knowledge/Training on beekeeping
b. Knowledge on local bee flora
c. Sufficient on local bee flora
d. If necessary practice migratory beekeeping

Apiary site requirements

a. The site should be dry without dampness. High RH will affect bee flight and ripening of nectar.
b. **Water -** Natural source/Artificial provision
c. **Wind breaks -** Trees serve as wind belts in cool areas
d. **Shade -** Hives can be kept under shade of trees. Artificial structures can also be constructed
e. **Bee pasturage/Florage -** Plants that yield pollen/nectar to bees are called bee pasturage/florage

General apiary management practices

i. **Hive inspection -** Opening the hive atleast twice a week and inspecting for following details.

- Presence of queen
- Presence of eggs and brood
- Honey and pollen storage
- Hive record to be maintained for each hive
- Presence of bee enemies like wax moth, mite, disease

ii. Expanding brood net

- Done by providing comb foundation sheet in empty frame during honey flow period.

iii. Sugar syrup feeding

- Sugar dissolved in water at 1:1 dilution
- Used to feed bees during dearth period

iv. Supering (Addition of frames in super chamber)

- This is done when brood chamber is filled with bees on all frames are covered
- Comb foundation sheet or constructed comb provided in super chamber

v. Honey extraction

- **Bee escape board** - Kept between brood and super chamber
- Bees bushed away using **brush**

- Cells uncapped using uncapping knife
- Honey extracted using honey extractor
- Combs replaced in hive for reuse

vi. Swarm management

- Remove brood frames from strong colony and provide to weak
- Pinch off the queen cells during inspection
- Divide strong colonies into 2 or 3
- Trap and hive primary swarm

vii. Uniting bee colonies - Done by Newspaper method

- Bring colonies side by side by moving 30 cm/day
- Remove queen from week colony
- Keep a newspaper on top of brood chamber of queen - Right colony
- Make holes on the paper
- Keep queenless colony on top
- Close hive entrance (the smell of bees will mix)
- Unite bees to the brood chamber and make it one colony

SEASONAL MANAGEMENT

- Pollen and nectar available only during certain period
  Honey flow season (surplus food source) x Dearth period (Scarcity of food)
- Extremes in climate like summer, winter and monsoon - Need specific management tactics

Honey flow season management (Coincides with spring)

- Provide more space for honey storage by giving CFS or built combs
- Confine queen to brood chamber using queen excluder
- Prevent swarming - As explained
- Prior to honey flow - Provide sugar syrup and build sufficient population
- Divide strong colonies into 2-3 new colonies - if colony multiplication need
- Queen rearing technique may be followed to produce new queens for new colonies

Summer management

- Bees have to survive intense heat and dearth period
- Provide sufficient shade (under trees or artificial structure)
- To increase RH and reduce heat - Sprinkle water twice a day on gunny bag or rice straw put on hive
- Increase ventilation by introducing a splinter between brood and super chamber
- Provide sugar syrup, pollen supplement/substitute and water

Winter management

- Maintain strong and disease free colonies
- Provide new queen to the hives
- Winter packing in cooler areas (Hilly areas)

Management during dearth period

- Remove empty combs (and store in air tight container)
- Use dummy division board to confine bees to small area
- Unite weak colonies
- Provide sugar syrup, pollen supplement/substitute

Rainy season/monsoon management

- Avoid dampness in apiary site. Provide proper drainage
- In rain when bees are confined to the hive, provide sugar syrup feeding

BEE PASTURAGE/BEE FORAGE

Plants that yield pollen and nectar are collectively called bee pasturage or bee forage.

Plants which are **good source of nectar**

1. Tamarind
2. Neem
3. Soapnut tree
4. Eucalyptus
5. Pungam
6. Moringa
7. *Prosopis juliflora*
8. *Glyricidia maculata*
9. *Tribulus terrestris*

Plants which are **good source of pollen**

1. Sorghum
2. Maize
3. Millets like Cumbu, Tenai, Varagu, Ragi
4. Roses
5. Pome granate
6. Sweet potato
7. Tobacco
8. Coconut
9. Castor
10. Date palm

Plants which are good source of Pollen and Nectar

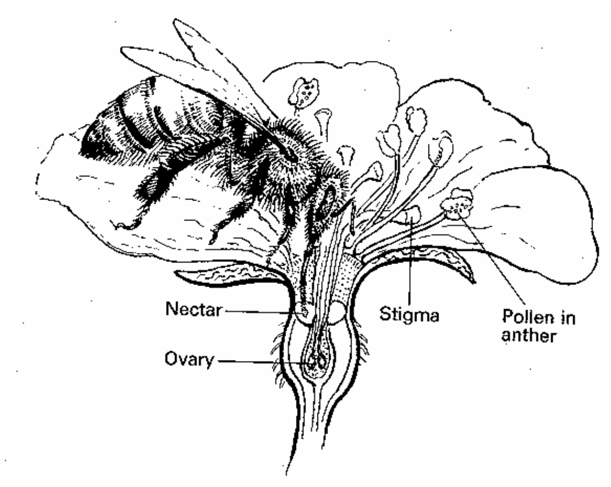
1. Banana
2. Citrus
3. Apple
4. Berries
5. Pear
6. Plum
7. Peach
8. Guava
9. Sunflower
10. Safflower
11. Mango

FORAGING

Refers to collection of nectar and pollen by bees.

Nectar foragers

- Collect nectar from flowers using lapping torigue
- Passes the nectar to hive bees
- Hive bees repeatedly pass the nectar between preoral cavity and tongue - to ripen honey
- Later drops into cell



Pollen foragers

- Collects pollen by passing flower to flower. Pollen sticking to body removed - Using pollen comb
- Packed using pollen press into corbicula
- A single bee carries 10-30 mg pollen (25% of bee's wt)
- Dislodge by middle log into cell
- Mix with honey and store



Floral fidelity

A bee visits same species of plant for pollen/nectar collection until exhausted. Bees travel 2-3 km distance to collect pollen/nectar.